

IN THE CLAIMS

1. (Currently amended) A network device assembly employed in a communication system comprising:

a plurality of network devices capable of communicating network information, through a packet switching network, to a technical support center ~~operated by technical support staff~~, said plurality of network devices coupled to said packet switching network through an interface line, each of the plurality of network devices including one or more hardware subsystems and one or more software subsystems and for monitoring the status of the hardware and software subsystems included therein and when a problem occurs either with respect to one or more of the hardware and software subsystems of a particular one of the plurality of the network devices or with respect to said interface line, the particular network device sends a first message to the technical support center notifying the technical support center of the problem without interruption to the operation of the network device, said network device assembly including a computer register for indicating the status of all of the hardware and software subsystems ~~immediately before the problem occurs~~ after a fault occurs and before device failure.

2. (Previously Presented) A network device assembly as recited in claim 1 wherein the interface line is an Internet line and the first message is in the form of an email message.

3. (Previously Presented) A network device assembly as recited in claim 1 wherein the first message is in the form of a fax transmission.

4. (Previously Presented) A network device assembly as recited in claim 1 wherein the first message is in the form of a page.

5. (Previously Presented) A network device assembly as recited in claim 1 including a processor for executing embedded software for monitoring the status of the hardware and software subsystems.

6. (Previously Presented) A network device assembly as recited in claim 1 wherein the packet switching network is the Internet.

7. (Canceled)

8. (Previously Presented) A network device assembly as recited in claim 1 wherein the computer register includes error messages for identifying a particular hardware or software subsystem failure.

9. (Previously Presented) A network device assembly as recited in claim 1 wherein each of the plurality of network devices includes a remote diagnostic embedded process subsystem, a hardware health status monitor subsystem and a software health status monitor subsystem, the remote diagnostic embedded process subsystem for communicating with the hardware health status monitor subsystem and the software health status monitor subsystem and for collecting status information provided by the software health status monitor subsystem and the hardware health status monitor subsystem and for detecting problems encountered by the hardware and software subsystems.

10. (Previously Presented) A network device assembly as recited in claim 1 wherein the plurality of network devices is responsive to a second message generated by the technical support center for requesting further information regarding the problem.

11. (Previously Presented) A network device assembly as recited in claim 1 wherein at least one of the plurality of network devices is an access server.

12. (Currently amended) A network device for use in communication with a technical support center ~~operated by a technical support staff~~, the technical support center being in communication with the network device through a packet switching network, comprising:

- an interface line coupling said network device to the packet switching network;
- one or more hardware subsystems;
- one or more software subsystems;

means for monitoring the status of the hardware and software subsystems and said interface line so that when a problem occurs with respect to one or more of the hardware or the software subsystems or the interface line, the network device transmits a first message to the technical support center to notify the technical support center of the problem without interruption to the operation of the network device; and

a computer register for indicating the status of all of the hardware and software subsystems ~~immediately before the problem occurs~~ after a fault occurs and before device failure.

13. (Currently amended) A network device as recited in claim 12 wherein the technical support ~~staff~~ center is able to diagnose the problem without interruption to the operation of the network device.

14. (Previously Presented) A network device as recited in claim 12 wherein the first message is in the form of an email message.

15. (Previously Presented) A network device as recited in claim 12 wherein the first message is in the form of a fax transmission.

16. (Previously Presented) A network device as recited in claim 12 wherein the first message is in the form of a page.

17. (Previously Presented) A network device as recited in claim 12 wherein the packet switching network is the Internet.

18. (Previously Presented) A network device assembly as recited in claim 12 wherein the network device is an access server.

19. (Previously Presented) A network device as recited in claim 12 including a remote diagnostic embedded process subsystem, a hardware health status monitor subsystem and a software health status monitor subsystem, the remote diagnostic embedded process subsystem for communicating with the hardware health status monitor subsystem and a software health status monitor subsystem and for collecting status information provided by the software health status monitor subsystem and the hardware health status monitor subsystem and for detecting problems encountered by the hardware and software subsystems.

20. (Previously Presented) A network device as recited in claim 19 wherein the remote diagnostic embedded process subsystem detects an error message prior to the transmission of the first message.

21. (Previously Presented) A network device as recited in claim 20 wherein the remote diagnostic embedded process subsystem detects certain criteria regarding the status of the network device prior to the transmission of the first message.

22. (Previously Presented) A network device as recited in claim 12 wherein the technical support center generates a second message and sends the same to the network device for requesting further information regarding the problem.

23. (Previously Presented) A network device as recited in claim 12 wherein the network device is in communication with a user and further wherein the technical support center includes an email server coupled to a command-formatter for communicating with a user interface, the email server for collecting the first message, the command-formatter for translating the first message into a format that is understandable to the user and the user interface for displaying information communicated between the network device and the user.

24. (Currently amended) A method for detecting a problem in a network device comprising:

during the operation of the network device, the network device communicating network information through a packet switching network to a technical support center ~~being operated by a technical support staff~~, the network device being coupled to the packet switching network through an interface line, the network device including one or more hardware subsystems and one or more software subsystems;

monitoring the status of the hardware and software subsystems and the interface line;

detecting the occurrence of a problem associated with one or more of the hardware or software subsystems or the interface line;

sending a first message to the technical support center for notification of the problem ~~so that the technical support staff is able~~ and to diagnose the problem without interruption to the operation of the network device; and

indicating the status of all of the hardware and software subsystems ~~immediately before the problem occurs~~ after a fault occurs and before device failure.

25. (Currently amended) A computer readable medium having stored therein computer readable program code comprising instructions for performing the following steps:

- during the operation of the network device, the network device communicating network information through a packet switching network to a technical support center ~~being operated by a technical support staff~~, the network device being coupled to the packet switching network through an interface line, the network device including one or more hardware subsystems and one or more software subsystems;
- monitoring the status of the hardware and software subsystems and the interface line;
- detecting the occurrence of a problem associated with one or more of the hardware or software subsystems or the interface line;
- sending a first message to the technical support center for notification of the problem ~~so that the technical support staff is able~~ and to diagnose the problem without interruption to the operation of the network device;
- indicating the status of all of the hardware and software subsystems ~~immediately before the problem occurs~~ after a fault occurs and before device failure.

26. (Previously Presented) A network device assembly as recited in claim 9 wherein said plurality of network devices include memory and the remote diagnostic embedded process subsystem is coupled to a memory monitoring subsystem for monitoring the memory of the network devices.